

## Listing and inspecting networks

```
C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\5-volumes>docker network ls
NETWORK ID      NAME      DRIVER      SCOPE
1c3f38e4cfdb    bridge    bridge      local
87baf04b8a8c    host      host        local
651fdc257c84    none      null        local
```

```
C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\5-volumes>docker network inspect bridge
```

```
[
  {
    "Name": "bridge",
    "Id": "1c3f38e4cfdb635c8610072af2ed46395a62eb4f646e940c9f37052af07ddb50",
    "Created": "2021-05-13T07:46:39.9072269Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.17.0.0/16"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {
      "com.docker.network.bridge.default_bridge": "true",
      "com.docker.network.bridge.enable_icc": "true",
      "com.docker.network.bridge.enable_ip_masquerade": "true",
      "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
      "com.docker.network.bridge.name": "docker0",
      "com.docker.network.driver.mtu": "1500"
    },
    "Labels": {}
  }
]
```

```
C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker run --rm -d --name dummy kaysagun/ping
177f812f412165f1df6cd45e189cb11319f9b7dd3e9d35ab7f1de0dff8fb2554
```

```
C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker network inspect bridge
```

```
[
  {
    "Name": "bridge",
    "Id": "1c3f38e4cfdb635c8610072af2ed46395a62eb4f646e940c9f37052af07ddb50",
    "Created": "2021-05-13T07:46:39.9072269Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.17.0.0/16"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {
      "177f812f412165f1df6cd45e189cb11319f9b7dd3e9d35ab7f1de0dff8fb2554": {
        "Name": "dummy",
        "EndpointID": "eb080772cdf66350978d0a7c70ac4bca31c1e6ebdf1edb625fd5212ea0098e2",
        "MacAddress": "02:42:ac:11:00:02",
        "IPv4Address": "172.17.0.2/16",
        "IPv6Address": ""
      }
    },
    "Options": {
      "com.docker.network.bridge.default_bridge": "true",
      "com.docker.network.bridge.enable_icc": "true",
      "com.docker.network.bridge.enable_ip_masquerade": "true",
      "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
      "com.docker.network.bridge.name": "docker0",
      "com.docker.network.driver.mtu": "1500"
    },
    "Labels": {}
  }
]
```

```
C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker run --rm -d -e PING_TARGET=172.17.0.2 --name pinger kaysagun/ping
89a19451fc8a0f7a248c32ddc466de41ee2f9f7b7d50e81b5fbc7589ca1c25f2
```

```
C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS   NAMES
89a19451fc8a   kaysagun/ping   'sh -c 'ping $PING_T...'   8 seconds ago   Up 4 seconds   -       pinger
177f812f4121   kaysagun/ping   'sh -c 'ping $PING_T...'   2 minutes ago   Up 2 minutes   -       dummy
```

```
C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker logs pinger
```

```
PING 172.17.0.2 (172.17.0.2) 56(84) bytes of data.
64 bytes from 172.17.0.2: icmp_seq=1 ttl=64 time=0.127 ms
64 bytes from 172.17.0.2: icmp_seq=2 ttl=64 time=0.088 ms
64 bytes from 172.17.0.2: icmp_seq=3 ttl=64 time=0.075 ms
64 bytes from 172.17.0.2: icmp_seq=4 ttl=64 time=0.078 ms
64 bytes from 172.17.0.2: icmp_seq=5 ttl=64 time=0.123 ms
64 bytes from 172.17.0.2: icmp_seq=6 ttl=64 time=0.072 ms
64 bytes from 172.17.0.2: icmp_seq=7 ttl=64 time=0.061 ms
64 bytes from 172.17.0.2: icmp_seq=8 ttl=64 time=0.082 ms
64 bytes from 172.17.0.2: icmp_seq=9 ttl=64 time=0.079 ms
64 bytes from 172.17.0.2: icmp_seq=10 ttl=64 time=0.083 ms
```

## Managing custom networks

```
C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker network create skynet
594191048e34521fff05bf0508e06fa0a3d169bc1e0029004245bf2d5ef5b716

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker network ls
NETWORK ID        NAME          DRIVER  SCOPE
1c3f38e4cfdb      bridge        bridge  local
87baf04b8a0c      host          host    local
651fdc257c84      none          null     local
594191048e34      skynet        bridge  local

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker network inspect skynet
[
  {
    "Name": "skynet",
    "Id": "594191048e34521fff05bf0508e06fa0a3d169bc1e0029004245bf2d5ef5b716",
    "Created": "2021-05-13T09:23:37.3058042Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.18.0.0/16",
          "Gateway": "172.18.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {},
    "Labels": {}
  }
]

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker run --rm -d --network skynet --name dummy kaysagun/ping
0dc90786a7729fafafc62a595d76e3bba3d4fd11c96c150cf4e0e185c981e2bf

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker network inspect skynet
[
  {
    "Name": "skynet",
    "Id": "594191048e34521fff05bf0508e06fa0a3d169bc1e0029004245bf2d5ef5b716",
    "Created": "2021-05-13T09:23:37.3058042Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.18.0.0/16",
          "Gateway": "172.18.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {
      "0dc90786a7729fafafc62a595d76e3bba3d4fd11c96c150cf4e0e185c981e2bf": {
        "Name": "dummy",
        "EndpointID": "fd8dee46b43264d08125f37249009e52fa289f2d789660d874b6ab67052664862",
        "MacAddress": "02:42:ac:12:00:02",
        "IPv4Address": "172.18.0.2/16",
        "IPv6Address": ""
      }
    },
    "Options": {},
    "Labels": {}
  }
]

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker run --rm -d --network skynet -e PING_TARGET=dummy --name pinger kaysagun/ping
ac0f2ceb31eaa00184c72c0db97d474936509bda64893c631614a66424d04a64

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker logs pinger
PING dummy (172.18.0.2) 56(84) bytes of data.
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=1 ttl=64 time=0.136 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=2 ttl=64 time=0.091 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=3 ttl=64 time=0.069 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=4 ttl=64 time=0.064 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=5 ttl=64 time=0.070 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=6 ttl=64 time=0.062 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=7 ttl=64 time=0.065 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=8 ttl=64 time=0.071 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=9 ttl=64 time=0.104 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=10 ttl=64 time=0.067 ms
```

## Connecting between containers in a network

```
C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker run --rm -d --name gadgetdb --network skynet -p :5432 -e POSTGRES_PASSWORD=password postgres
5758310b62a87b0e03f9873d771aa104d7fa4424477438a42f5ae054db21391

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
5758310b62a8   postgres  "docker-entrypoint.s..." 8 seconds ago  Up 4 seconds  0.0.0.0:64835->5432/tcp            gadgetdb

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker run --rm -d --name widgetdb --network skynet -p :5432 -e POSTGRES_PASSWORD=password postgres
95e1b242e09376f9228eef3d275a2de31efba0a33418adaab641bebe0d554e98

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
95e1b242e093   postgres  "docker-entrypoint.s..." 7 seconds ago  Up 3 seconds  0.0.0.0:64837->5432/tcp            widgetdb
5758310b62a8   postgres  "docker-entrypoint.s..." 29 seconds ago  Up 25 seconds  0.0.0.0:64835->5432/tcp            gadgetdb

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker exec -it widgetdb /bin/bash
root@95e1b242e093:/# psql -U postgres
psql (13.2 (Debian 13.2-1.pgdg100+1))
Type "help" for help.

postgres=# \q
root@95e1b242e093:/# psql -U postgres -h gadgetdb
Password for user postgres:
psql (13.2 (Debian 13.2-1.pgdg100+1))
Type "help" for help.

postgres=# \q
root@95e1b242e093:/# exit
exit

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker stop widgetdb gadgetdb
widgetdb
gadgetdb
```

## Binding ports to the host

```
C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>docker run --rm -d --name widgetdb --network skynet -p 5432:5432 postgres
579d33c681532cba10eff04b26f93147ff5f16534c37097b630fe7f8af7ad563

C:\Users\kaysagun\Desktop\CoE_197\ME8_Containerization_and_Docker\3-building_images>psql -U postgres -h localhost
'psql' is not recognized as an internal or external command,
operable program or batch file.
```